

Lyme disease can afflict dogs as well as humans

By Laura Hambleton, Published: August 27

A few weeks after a short stay at a dog kennel more than two years ago, Kathleen Drew's 6-year-old golden retriever Cody stopped eating. The dog's veterinarian suggested changing her diet and adding hamburgers into the mix to entice her.

As the dog started to lose weight, the vet suspected a urinary tract infection, treating that with an antibiotic. Vets at a local animal hospital who were consulted suggested problems with Cody's kidneys. But tests and ultrasounds weren't conclusive.

When Cody suddenly became very ill two months later, the family rushed the dog to the animal hospital, where vets hooked her up to IVs, ran more tests and injected her with antibiotics. None of it helped. The dog had developed severe kidney failure and soon died.

Only after an autopsy did the vets identify the culprit: Lyme disease, which can be particularly deadly to some dogs.

"The vets were as surprised as can be," Drew said in a recent interview. "At the time, Lyme disease was just not something people thought about."

Most recover, but some don't

With its bull's-eye rash, achy joints and flulike symptoms, Lyme is a concern for humans. Most dogs exposed to the disease show no signs of infection and recover on their own. But a small percentage run fevers, become lame, lose their appetite or, in rare instances, die. And some of America's favorite breeds — golden retrievers and Labrador retrievers — seem to be particularly at risk.

"Lyme disease can be a terrible disease" in dogs, said Richard Goldstein, chief of medicine for the Animal Medical Center in New York, who has studied the disease in dogs for more than 10 years. "Sick dogs can look like they are in a lot of pain. It comes on suddenly. It is the most common infectious tick-borne disease in dogs and humans in the mid-Atlantic." The illness is treated in dogs, as in humans, with the antibiotic doxycycline. (Cats do not get Lyme.)

The disease was first detected in humans in Lyme, Conn., in the 1970s, but the bacterium that causes it, *Borrelia burgdorferi*, was not identified until 1981. Three years later, it was diagnosed

in dogs. Two species of ticks transmit Lyme: the blacklegged tick (*Ixodes scapularis*) on the East Coast and the Western blacklegged tick (*Ixodes pacificus*) on the West Coast. These insects are often called deer ticks, but they are happy to live on a variety of mammals, including birds, mice and raccoons.

Scientists believe birds carried the deer tick from New England into Washington's lush suburbs, which are perfect breeding grounds for ticks, according to Ed Breitschwerdt, a professor of internal medicine at the College of Veterinary Medicine at North Carolina State University.

According to the [Centers for Disease Control and Prevention](#), Lyme is now found in 12 states, including an area from southern Maine to Northern Virginia. The number of cases nationally among humans has dramatically increased [since 1990](#), with more than 22,000 cases reported in 2010.

"In the Washington area, there are plenty of cases" of infected dogs, Goldstein said. As a result, vets who may have not recognized it as a common threat are now both testing for it and recommending year-round prevention in the form of anti-tick collars and skin drops.

A long wait

Ticks do not hop, jump, scurry or fly; they rely on their host to cart them around. To attach themselves to a host, they lie in wait on a blade of grass or a leaf, gripping with their third and fourth set of legs and waving around their first and second pairs until they grab onto a passing animal.

They have a two-year life cycle. In the fall, an adult tick lays eggs, sometimes 2,000 at a time. When the larva emerges in the summer, it attaches itself to a host, usually a small mammal such as a mouse or a ground-feeding bird.

The larva, which can pick up Lyme bacteria when it feeds on an infected host, eventually drops off the host and spends the winter molting until spring, when it becomes a nymph. It is then able to transmit the disease.

Ticks present the most trouble in the fall as these nymphs grow into adult ticks. At this point, they occupy higher points such as shrubs and small trees, perfect spots to latch onto a dog sniffing in the greenery. Once attached to a dog, they will insert their feeding tubes into the skin to sip blood. After two days of feeding, the Lyme pathogens from an infected tick are transmitted to the host animal. Once a tick has had its fill, it often drops off and lives for months before attaching to other hosts for the second and third meals it will get in its lifetime.

While Lyme disease shows up quickly in about 30 percent of humans, it takes a few months for clinical signs to show up in a dog, if at all. Dogs and ticks evolved together, said Breitschwerdt, which may explain why most dogs won't get sick from Lyme disease. "The vast majority of dogs eliminate the infection or immunologically control the infection," Breitschwerdt said. "When dogs are infected with these bacteria, their immune system may not eliminate them, but the immune response can stop them from getting sick."

Scientists are not sure why retrievers appear to be more prone to illness from Lyme than other breeds. A [study published](#) in the journal Veterinary Pathology in 1997 looked at 49 dogs that had become ill with kidney failure due to Lyme disease and found that 24 of them were either golden or Labrador retrievers. Goldstein says the statistics may reflect the fact that retrievers are popular and outdoorsy dogs, and therefore possibly more likely to be exposed to ticks. Or, he said, it may be that these breeds are predisposed to kidney diseases. Scientists have yet to figure that out.

Year-round precautions

While dogs can be tested for Lyme disease, such tests were not routine until recently, in part because many veterinarians — just like many doctors dealing with humans — did not realize how pervasive the disease had become in the Washington area.

Veterinarians say the test that checks a dog's blood for Lyme is now much more accurate, and it is available in most clinics, with results the same day. It is now routine to use the blood test and to check for protein in urine if a vet suspects Lyme disease.

Many vets recommend vaccinating dogs in the Washington area against Lyme; they also advise year-round use of anti-tick drops or collars because the vaccine is not 100 percent effective and ticks do not always die out in winter.

Not all vets agree about the vaccinations. Meryl Littman, an associate professor of medicine at the University of Pennsylvania School of Veterinary Medicine, said, "Lots of private practitioners use them, but not all academicians recommend them." One reason, Littman said, is that one of the worst kidney diseases a dog can get is an "immune-mediated glomerulonephritis. It is mostly seen in Labrador and golden retrievers. We don't know whether the Lyme vaccines could make an immune-mediated disease worse, and so I prefer not to use them."

The American Veterinary Medical Association recommends the vaccine for dogs living in areas where Lyme is endemic.

The Centers for Disease Control and Prevention recommends checking for ticks on your dog every day, especially after your dog has been outside, for a walk or in the woods. Check yourself as well. A key to prevention is getting rid of the tick before it can attach for an extended period.

Wendy Walker, a veterinarian in Olney and past president of the Maryland Veterinary Medical Association, includes yard maintenance as a preventive measure against Lyme. "Keep grass short, and prevent dogs free access to bushes which are not pruned," she said, noting that other problematic ticks have turned up in this area, including the lone star tick, which can carry a disease that causes symptoms in dogs and humans similar to Lyme but is not prevented by a Lyme vaccine or found by a Lyme test.

The CDC provides tick-limiting [landscaping ideas for your home](#), which include moving tall grasses and bushes away from your house, spreading wood chips or gravel between your lawn and any wooded areas beyond it and locating patios and decks in sunny areas.

Walker would like to make tick education mandatory for health professionals, including vets, and warns that dog owners need to be vigilant for reasons of their own health as well. “When pets sleep in your bed, the last thing you want is a tick.”

As far as Kathleen Drew is concerned, everyone should be aware of the risk that Lyme can pose to dogs: “If they had figured it out early and done the right thing with antibiotics,” Cody would probably be alive today.

Hambleton is a freelance writer and documentary filmmaker.

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